

Phosphorus Uptake of Triticale (Triticosecale Wittmack) Genotypes at Different Growth Stages

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Abstract : Triticale (Triticosecale Wittmack) is a man-made crop developed by crossing wheat (Triticum L.) and rye (Secale cereale L.). Triticale has until now been used mostly for animal feed; however, it can be consumed by humans in the form of biscuits, cookies, and unleavened bread. Moreover, one of the reasons for the development of triticale is that it is more efficient in nutrient deficient soil than wheat cultivars. After nitrogen fertilizer, phosphorus (P) is the most used fertilizer for crop production because P fixation occurs highly when it is applied the soil. The aim of the present study was to evaluate P uptake of winter triticale genotypes under different P fertilizer rates in different growth stages. The experiment was conducted in Eskisehir, Central Anatolia, Turkey. Treatments consisted of five triticale lines and one triticale cultivars (Samursortu) with four rates of P fertilization (0, 30, 60 and 120 kg P₂O₅ ha⁻¹). Phosphorus uptake of triticale genotypes in tillering, heading, as well as grain and straw at harvest stage and yield of grain and straw were determined. The results showed that a P rate of 60 kg/ha and the TCL-25 genotype produced the highest yields of straw and grain at harvest. Phosphorus uptake was the highest in tillering stage, and it decreased towards to harvest time. Phosphorus uptake of all growth stage increased as P rates raised and the application of 120 kg/ha P₂O₅ had the highest P uptake. Phosphorus uptake of genotypes was found differently. The regression analyses indicated that P uptake at tillering stage was the most effective on grain yield. These results will provide useful information to triticale growers about suitable phosphorus fertilization for both forage and food usage.

Keywords : grain yield, growth stage, phosphorus fertilization, phosphorus uptake, triticale

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